



US 20140329511A1

(19) **United States**(12) **Patent Application Publication****Vesa et al.**(10) **Pub. No.: US 2014/0329511 A1**(43) **Pub. Date: Nov. 6, 2014**(54) **AUDIO CONFERENCING**(75) Inventors: **Sampo Vesa**, Helsinki (FI); **Jussi Virolainen**, Espoo (FI)(73) Assignee: **Nokia Corporation**, Espoo (FI)(21) Appl. No.: **14/365,353**(22) PCT Filed: **Dec. 20, 2011**(86) PCT No.: **PCT/FI2011/051139**

§ 371 (c)(1),

(2), (4) Date: **Jun. 13, 2014****Publication Classification**(51) **Int. Cl.****H04M 3/56**

(2006.01)

H04W 4/16

(2006.01)

(52) **U.S. Cl.**CPC **H04M 3/568** (2013.01); **H04W 4/16**

(2013.01)

USPC **455/416**

(57)

ABSTRACT

The invention relates to audio conferencing. Audio signals are received and transformed to a spectrum, and then modified by mel-frequency scaling and logarithmic scaling before a second-order transform. The obtained coefficients can be further processed before carrying out the similarity comparison between signals. Voice activity detection and other information like mute signalling can be used in the formation of the similarity information. The resulting similarity information can be used to form groups, and the resulting groups can be analyzed topologically. The similarity information can then be used to form a control signal for audio conferencing, e.g. to control an audio conference so that a signal of a co-located audio source is removed.

